CMSE511 - Software Architecture

Department: Software Engineering

Instructor Information

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Meeting times and places
Monday 13:30-14:20, CMPE 033
Wednesday 14:30-16:20, CMPE 126

Program Name: Software Engineering	**Program Code:** 29

Course Code	**Credits**	**Year/Semester**
CMSE511	3	2022-2023 Fall

Catalog Description

The focus of this course is software products development organization in order to create a reliable, secure, and efficient software products. This includes analyzing the overall structure of the developmental and release stages of a software, how the software is decomposed into components, the server organization, and the technologies used to build the software.

Aims & Objectives

Teaching the basic concepts of software architectural designs, patterns and views with specific emphasis on the practical issues involved in software project management. Additionally, introduction to cloud-based software and micro-services architecture will be discussed.
Students will work in teams on projects related to software architectural design and procedures. They will also review research papers on related topics individually and present their findings in class. The aim is to develop their skills in designing software architectures and developing software as a team.

Course Web Page

https://staff.emu.edu.tr/felixbabalola/en/teaching/cmse511

Textbook(s)

- Ian Sommerville, Engineering Software Products: An Introduction to Modern Software Engineering, ISBN-10: 013521064X • ISBN-13: 9780135210642 ©2020 • Pearson • Paper, 352 pp, Published 18 Feb 2019
- Len Bass, Paul Clements, Rick Kazman. Software Architecture in Practice, 2nd Edition. Addison Wesley. ISBN: 0-321-15495-9 Published April 11, 2003

Indicative Basic Reading List:

- Paul Clements, et al. Documenting software architectures: views and beyond. Addison-Wesley, 2011, ISBN: 9780321552686
- Ian Sommerville, Software Engineering 10th ed., Pearson, April 2015. ISBN: 9780133943030

Topics Covered and Class Schedule

Week 1	Discussion about course content and term projects. Introduction to Software Architecture
Week 2-3	Software Architecture Designs, Patterns and Views.

Week 4	Software System Modeling; Use Cases and Sequence Diagrams, Data flow diagrams
Week 5	Software System Modeling; Data flow diagrams, UML diagrams
Week 6-7	Cloud-based Software Architecture. Project Presentations
Week 8-9	MIDTERMS
Week 10-11	Micro-services Architecture
Week 12	Development and Code Management
Week 13	Case Studies. Group Project Presentations
Week 14-15	FINAL EXAMS

Course Learning Outcomes

On successful completion of this course, all students will have developed **knowledge** and **understanding** of:

- Software architecture
  Software design modelling, patterns and views
- Cloud-based software architecture
- Software configuration management

On successful completion of this course, all students will have developed **their skills in**:

- Software architectural design modelling
- Configuration management
- Software architecture documentation

	Method	**No**	**Percentage**
Assessment	Midterm Exam(s)	1	35%
	Final Examination	1	35%
	Individual Project	1	10%
	Group Project	1	20%

Attendance grade: No grade will be given.

Policy on makeups: For eligibility to take a makeup exam, the student should bring a doctor's report within 3 working days of the missed exam.

Policy on the NG grade: If you miss two exams with no valid excuse, you will be given the NG grade.

Prepared by: Dr. Felix Babalola	**Date:** 30 September 2022